

District 06 Mobility Performance Report

2017 Third Quarter

DEPARTMENT OF TRANSPORTATION

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District 06 Mobility Performance Report

2017 Third Quarter

EXECUTIVE SUMMARY

Overview

Caltrans District 6 is geographically diverse district and the third largest of the 12 Districts statewide, stretching from the southernmost part of Yosemite National Park in the north to the Mojave Desert. It includes Madera, Fresno, Tulare, Kings and Kern counties. District 6 maintains and operates of 476 miles of freeway and 1,554 miles of rural and urban highway. The District has the largest portion of road miles to maintain in the state highway system with 2,030 miles.

The Mobility Performance quarterly analysis compares information with over a year ago and over last quarter in the following performance measures:

- Vehicle Miles of Travel (VMT))
- Vehicle Hours of Delay (VHD)
- Lost Lane Miles (equivalent lost productivity)
- Detector Health

This information is based on the continuous data collected by automated vehicle detector stations deployed on urban-area freeways with recurrent congestion. The MPR presents congestion delay information at two speed thresholds: delay from vehicles traveling below 35 miles per hour (mph), and delay from vehicles traveling below 60 mph. The delay at the 35 mph threshold represents severe congestion while delay at 60 mph represents all congestion. These thresholds are set by Caltrans and are based on engineering experience and District input.

FINDINGS

In the third quarter of 2017, the total delay equaled 263 thousands Vehicle Hours of Delay (VHD) at the 35 mph speed threshold, and 1,364 thousands VHD at the 60 mph threshold. The average weekday delay experienced in this quarter was approximately 3,059 thousands VHD at 35 mph, and 17 thousand VHD at 60 mph.

The VHD in this quarter experienced an overall decrease of 20.9% compared to the previous quarter. However, the delay analysis for each route showed up or down variations. The increased VHD on Interstate 5 in Kern County is due to several malfunctioning detectors during the second quarter were back on-line in this quarter. The increased VHD on Interstate 5 in Fresno County could be related several construction projects on the freeway and is expected to improve after completion of the projects in the area. The malfunctioning of the several detectors provided very low VHD data on the State Route 46 in Kern County. The district is working to improve the health of the detectors in the area.

There was one bottleneck location reported within the District 6 Highway system. The bottleneck reported include bottleneck location that was active on at least 20 percent of all weekdays during the quarter, persisted for at least 15 minutes on average, and caused more than 100 vehicle hours of delay (VHD) per weekday.

Location									Bottleneck Characteristics			
VDS	Name	Type	Shift	Fwy	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Avg Delay (veh-hrs)	Avg Duration (mins)
619983	S OF CALIFORNIA AVE	ML	PM	SR99-S	26.131	25.309	35.378002	-119.044655	19	1.2	102.9	91.3

There were several roadway construction in third quarter around State Route 99 & State Route 58 within the City of Bakersfield. The Southbound State Route 99 to Eastbound State Route 58 connector traffic was backed up which may have affected the State Route 99 mainline traffic.

Quarterly Mobility Statistics

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table><tr><th>Quarter</th><th>VMT (Billions)</th></tr><tr><td>2016 Q3</td><td>1.5</td></tr><tr><td>2017 Q2</td><td>1.8</td></tr><tr><td>2017 Q3</td><td>1.9</td></tr></table>	Quarter	VMT (Billions)	2016 Q3	1.5	2017 Q2	1.8	2017 Q3	1.9	Over one year ago	Over last quarter
		Quarter	VMT (Billions)								
2016 Q3	1.5										
2017 Q2	1.8										
2017 Q3	1.9										
		21.4% ↑	2.8% ↑								
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table><tr><th>Quarter</th><th>VHD (Thousands)</th></tr><tr><td>2016 Q3</td><td>222.3</td></tr><tr><td>2017 Q2</td><td>341.5</td></tr><tr><td>2017 Q3</td><td>263.1</td></tr></table>	Quarter	VHD (Thousands)	2016 Q3	222.3	2017 Q2	341.5	2017 Q3	263.1	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
2016 Q3	222.3										
2017 Q2	341.5										
2017 Q3	263.1										
		18.3% ↑	-23% ↓								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours</p> <table><tr><th>Quarter</th><th>VHD (Hours)</th></tr><tr><td>2016 Q3</td><td>2745</td></tr><tr><td>2017 Q2</td><td>3866</td></tr><tr><td>2017 Q3</td><td>3059</td></tr></table>	Quarter	VHD (Hours)	2016 Q3	2745	2017 Q2	3866	2017 Q3	3059	Over one year ago	Over last quarter
		Quarter	VHD (Hours)								
2016 Q3	2745										
2017 Q2	3866										
2017 Q3	3059										
		11.4% ↑	-20.9% ↓								
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table><tr><th>Quarter</th><th>VHD (Millions)</th></tr><tr><td>2016 Q3</td><td>1</td></tr><tr><td>2017 Q2</td><td>1.4</td></tr><tr><td>2017 Q3</td><td>1.4</td></tr></table>	Quarter	VHD (Millions)	2016 Q3	1	2017 Q2	1.4	2017 Q3	1.4	Over one year ago	Over last quarter
		Quarter	VHD (Millions)								
2016 Q3	1										
2017 Q2	1.4										
2017 Q3	1.4										
		32.5% ↑	-1.1% ↓								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table><tr><th>Quarter</th><th>VHD (Thousands)</th></tr><tr><td>2016 Q3</td><td>13</td></tr><tr><td>2017 Q2</td><td>17</td></tr><tr><td>2017 Q3</td><td>17</td></tr></table>	Quarter	VHD (Thousands)	2016 Q3	13	2017 Q2	17	2017 Q3	17	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
2016 Q3	13										
2017 Q2	17										
2017 Q3	17										
		29.3% ↑	-0.4% ↓								

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph	<p>Hours (Thousands)</p> <p>2016 Q3 2017 Q2 2017 Q3</p>	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		–	Thursday -5.9%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Tuesday 38.2%	Tuesday 8.9%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays	<p>Hours (Thousands)</p> <p>Weekday (2016 Q3) Weekday (2017 Q2) Weekday (2017 Q3)</p> <p>Hour of Day</p>	Largest Magnitude Weekday Decrease over one year ago	Largest Magnitude Weekday Decrease over last quarter
		8 AM -21.9%	7 AM -43.5%
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		8 PM 134.1%	7 PM 69%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays	<p>Hours (Thousands)</p> <p>Saturday (2016 Q3) Saturday (2017 Q2) Saturday (2017 Q3)</p> <p>Hour of Day</p>	Largest Magnitude Saturday Decrease over one year ago	Largest Magnitude Saturday Decrease over last quarter
		12 PM -25%	3 AM -73%
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		7 AM 212.3%	5 PM 22.5%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays	<p>Hours (Thousands)</p> <p>Sunday/Holiday (2016 Q3) Sunday/Holiday (2017 Q2) Sunday/Holiday (2017 Q3)</p> <p>Hour of Day</p>	Largest Magnitude Sun./Holiday Decrease over one year ago	Largest Magnitude Sun./Holiday Decrease over last quarter
		3 PM -48.2%	8 AM -46.5%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		7 AM 363.7%	7 PM 49.3%

Measure	Graph	Percentage Change																									
Total Vehicle Hours of Delay (VHD) by County at 35 mph	<table border="1"><caption>Total Vehicle Hours of Delay (VHD) by County at 35 mph</caption><thead><tr><th>County</th><th>2016 Q3</th><th>2017 Q2</th><th>2017 Q3</th></tr></thead><tbody><tr><td>Fresno</td><td>78</td><td>145</td><td>100</td></tr><tr><td>Kern</td><td>95</td><td>105</td><td>110</td></tr><tr><td>Kings</td><td>5</td><td>5</td><td>5</td></tr><tr><td>Madera</td><td>35</td><td>30</td><td>28</td></tr><tr><td>Tulare</td><td>5</td><td>20</td><td>15</td></tr></tbody></table>	County	2016 Q3	2017 Q2	2017 Q3	Fresno	78	145	100	Kern	95	105	110	Kings	5	5	5	Madera	35	30	28	Tulare	5	20	15	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		County	2016 Q3	2017 Q2	2017 Q3																						
		Fresno	78	145	100																						
		Kern	95	105	110																						
Kings	5	5	5																								
Madera	35	30	28																								
Tulare	5	20	15																								
Madera -22.7%	Fresno -42.4%																										
Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter																										
Fresno 30.4%	Kern 4.7%																										
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	<table border="1"><caption>Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph</caption><thead><tr><th>Period</th><th>2016 Q3</th><th>2017 Q2</th><th>2017 Q3</th></tr></thead><tbody><tr><td>AM Peak (6 AM to 10 AM)</td><td>3.0</td><td>5.0</td><td>3.0</td></tr><tr><td>Off-Peak Day (10 AM to 3 PM)</td><td>3.0</td><td>4.0</td><td>3.0</td></tr><tr><td>PM Peak (3 PM to 7 PM)</td><td>7.0</td><td>7.0</td><td>7.0</td></tr><tr><td>Off-Peak Night (7 PM to 6 AM)</td><td>2.0</td><td>4.0</td><td>4.0</td></tr></tbody></table>	Period	2016 Q3	2017 Q2	2017 Q3	AM Peak (6 AM to 10 AM)	3.0	5.0	3.0	Off-Peak Day (10 AM to 3 PM)	3.0	4.0	3.0	PM Peak (3 PM to 7 PM)	7.0	7.0	7.0	Off-Peak Night (7 PM to 6 AM)	2.0	4.0	4.0	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter				
		Period	2016 Q3	2017 Q2	2017 Q3																						
		AM Peak (6 AM to 10 AM)	3.0	5.0	3.0																						
		Off-Peak Day (10 AM to 3 PM)	3.0	4.0	3.0																						
PM Peak (3 PM to 7 PM)	7.0	7.0	7.0																								
Off-Peak Night (7 PM to 6 AM)	2.0	4.0	4.0																								
Off-Peak Day -4.9%	AM Peak -31.6%																										
Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter																										
Off-Peak Night 104.4%	Off-Peak Night 0.3%																										
Average Number of Good and Bad Detectors	<table border="1"><caption>Average Number of Good and Bad Detectors</caption><thead><tr><th>Quarter</th><th>Average of Good</th><th>Average of Bad</th></tr></thead><tbody><tr><td>2016 Q3</td><td>962</td><td>296</td></tr><tr><td>2017 Q2</td><td>1,063</td><td>351</td></tr><tr><td>2017 Q3</td><td>1,104</td><td>346</td></tr></tbody></table>	Quarter	Average of Good	Average of Bad	2016 Q3	962	296	2017 Q2	1,063	351	2017 Q3	1,104	346	Change in Good over one year ago	Change in Good over last quarter												
		Quarter	Average of Good	Average of Bad																							
		2016 Q3	962	296																							
		2017 Q2	1,063	351																							
2017 Q3	1,104	346																									
15%	4%																										
Change in Bad over one year ago	Change in Bad over last quarter																										
17%	-1%																										

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2017 Q3-2016 Q3		Difference 2017 Q3-2017 Q2		Rank		
		2016 Q3	2017 Q2	2017 Q3	Absolute	Percentage	Absolute	Percentage	2016 Q3	2017 Q2	2017 Q3
I5	Kern	24,120	21,515	65,652	41,532	172.2%	44,137	205.1%	5	8	1
SR99	Fresno	30,747	41,345	31,593	846	2.8%	-9,752	-23.6%	4	3	2
I5	Fresno	14,115	92,203	30,305	16,190	114.7%	-61,898	-67.1%	7	1	3
SR99	Madera	36,467	31,475	28,182	-8,285	-22.7%	-3,294	-10.5%	2	4	4
SR99	Kern	31,266	29,114	27,818	-3,448	-11.0%	-1,296	-4.5%	3	5	5
SR41	Fresno	19,575	23,470	27,149	7,574	38.7%	3,679	15.7%	6	6	6
SR99	Tulare	6,154	21,648	14,545	8,391	136.3%	-7,103	-32.8%	9	7	7
SR46	Kern	39,827	51,246	12,984	-26,843	-67.4%	-38,262	-74.7%	1	2	8
SR58	Kern	1,707	5,415	5,806	4,099	240.1%	391	7.2%	12	11	9
SR180	Fresno	10,681	10,997	4,785	-5,895	-55.2%	-6,211	-56.5%	8	9	10
SR168S	Fresno	2,291	7,526	4,186	1,895	82.7%	-3,340	-44.4%	11	10	11
SR41	Kings	2,471	2,088	3,200	730	29.5%	1,113	53.3%	10	12	12
SR180S	Fresno	0	0	3,019	3,019		3,019				13
SR198	Kings	1,453	1,104	2,069	616	42.4%	965	87.4%	13	14	14
I5	Kings	919	1,675	887	-32	-3.5%	-788	-47.1%	14	13	15
SR198	Tulare	447	311	754	307	68.6%	443	142.5%	15	15	16
SR178	Kern	0	77	174	174		98	127.5%		17	17
SR152	Madera	1	32	2	2	360.0%	-29	-92.7%	17	18	18
SR168	Fresno	83	0	0	-83	-100.0%	0		16		
SR41	Madera	0	296	0	0	-100.0%	-296	-100.0%	18	16	
TOTALS		222,324	341,534	263,110	40,786	18.3%	-78,424	-23.0%			

Vehicle Hours of Delay is in Hours (Thousand)